TOPIC: PORTABLE FIRE EXTINGUISHER; BASIC OPERATION AND SAFETY

TIME FRAME: :30

LEVEL OF INSTRUCTION: Level I

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will list and describe the operating procedures for several common extinguishers and the safety considerations associated with portable fire extinguishers.

Standard: With a minimum of 80% accuracy

MATERIALS NEEDED:

- Dry chemical extinguisher
- Pressurized water extinguisher
- CO_2 extinguisher
- Pump type portable fire extinguishers (back-pumps)
- Appropriate visual aids
- Audio visual equipment

REFERENCES:

- IFSTA, Essentials of Fire Fighting, 5th Edition, Chapter 6

PREPARATION: In certain situations, the best extinguishing techniques on emergency incidents include the use of portable fire extinguishers. Failure to follow proper and safe procedures may jeopardize the firefighter's safety and effectiveness.

PRESENTATION	APPLICATION

I. FIRE EXTINGUISHER RATINGS

A. Purpose - state the relative effectiveness of a specific extinguisher under laboratory conditions

B. Traditional alpha-numeric system

1. Class A fire extinguishers

a. "Numeric" component states effectiveness of an extinguisher regardless of the extinguishing agent in terms of gallons of water

b. "Alpha" components "A" indicates appropriate for Class A fires

EXAMPLE - (2:A) extinguishes the same amount of ordinary combustibles as two gallons of water

2. Class B fire extinguishers

a. "Numeric" component states effectiveness in terms of how many square feet of deep based flammable liquid will be extinguished

b. "Alpha" component "B" indicates appropriate for use on flammable liquid fires

EXAMPLE: (10:B) extinguisher should extinguish ten square feet of deep base flammable liquid fire

NOTE: Rating is 40% of what trained operator can extinguish

3. Class C fire extinguishers

a. No "numeric" component exists

PRESENTATION	APPLICATION

b. "C" indicates appropriate for use on energized electrical fires

EXAMPLE: "C" Agent is a non-conductor

4. Class D fire extinguishers

a. No "Numeric" component exists

b. Combustible metal fires on which effective listed on face plate or label

EXAMPLE: "D"

5. Class K fire extinguishers

a. Class K is a new classification of fire as of 1998 and involves fires in combustible cooking fuels such as vegetable or animal oils and fats

b. These fuels are similar to Class B fuels but involve high-temperature cooking oils and therefore have special characteristics

c. Typically, firefighters have used Class B extinguishers on these types of fires, but they have been less effective on deep layers of cooking oils

d. Class K agents are usually wet chemicals

e. These agents are usually used in fixed systems, but some extinguishers are available

6. Multi-class rating

a. An extinguisher effective against more than one class of fire will be so labeled

EXAMPLE: (2A: 40B: C) = As effective as 2 gallons of water on ordinary combustibles will

PRESENTATION	APPLICATION
extinguish 40 Sq. Ft. of flammable liquids and is a non-conductor	
II. OPERATIONS	
A. Selection of the proper extinguisher depends on numerous factors	
	What factors would help determine the type of fire extinguisher to be used?
B. Operating procedure	
1. General operating procedure follows the ` letters PASS	
a. **P**=Pull the locking pin that keeps the handle from being pressed after breaking the plastic or wire inspection band	
b. **A=**Aim the nozzle or outlet toward the base of the fire	
c. **S=**Squeeze the handle to discharge extinguishing agent	
d. **S**=Sweep back and forth across the base of the flame	
C. Pump tank extinguishers	
	Show a pump type extinguishers (e.g. CAL FIRE Backpump)
1. Use on class A fires only	
2. Stream reaches between 30' and 40'	
3. Must protect extinguishing agent from freezing	

PRESENTATION	APPLICATION
4. Vent hole must be kept clear so air may replace water discharged	
5. May be equipped with spray and/or straight stream tip	
D. Stored pressure water extinguisher	
	Show Example
1. Use on class A fires	
2. Stream reaches 30' to 40'	
3. Discharge time - 30 to 60 seconds	
4. Use finger over nozzle if necessary to break up stream	
5. Pressurized with air	
E. Aqueous film forming foam (AFFF) extinguishers	
	Show Example
1. Use on class A or B fires	
2. Stream reaches 20' to 25'	
3. Discharge time 50 seconds	
4. Generally has an aerating nozzle	
5. Pressurized with air	
F. Halon 1211 extinguishers	
	Show Example
1. Use on class C fires	
a. Discharge range-feet	
(1) 9-12 feet	

PRESENTATION	APPLICATION
b. Duration of discharge-seconds (1) 10 seconds c. Confined space not less than cubic feet (1) 156 cubic feet (2) Wind may have a radical affect on the stream of extinguishing agent d. Limited effectiveness on class A & B fires 2. Stream 8' to 18' 3. Discharge time - 8 to 22 seconds 4. Best used in confined space 5. Halongenated extinguishing compounds have been linked to destruction of the ozone layer 6. Halon 1211 and 1301 halogen extinguishing agents were replaced in 2000 with a. FE-36 b. FE-241	
G. Carbon dioxide extinguishers 1. Use on class B and C fires a. Caution - frost will form on the nozzle - contact could cause injury b. Limited effectiveness on class A fires 2. Stream reaches 3' to 8' 3. Discharge time 30 seconds	Show Example

PRESENTATION	APPLICATION
4. Best used in confined space	
H. Dry chemical extinguishers	
	Show Example
1. Use ordinary dry chemical on Class B and C fires	
2. Use tri-class dry chemical on Class A, B, & C fires	
3. Stream reaches 5' to 20'	
4. Discharge time 8 to 25 seconds	
III. SAFETY - COMMON TO ALL TYPES OF PORTABLE FIRE EXTINGUISHERS	
A. Wear full protective clothing	
B. Use SCBA	
C. Choose correct type of extinguisher for fire encountered	
D. Approach from upwind/upslope	
E. Check for serviceability	
1. Pressure gauge	
2. Short burst prior to reaching fire	
F. Back away from fire checking for re-ignition	
G. Don't run while carrying	
H. Do Not Use C02 extinguisher with metal horn on Class "C" fires	
1. Could conduct electricity	

PRESENTATION	APPLICATION
I. Do Not Mix different dry chemical extinguishing agents	
1. Could cause chemical reaction	
J. When used on flammable liquids, avoid splashing of burning fuel, bounce or lob agent	
IV. SERVICING PORTABLE FIRE EXTINGUISHERS	
A. Recharging	
	Who may recharge a portable fire extinguisher?
1. By trained personnel	
2. In accord with instructions printed on the extinguisher	
3. After each use	
B. Inspections and repairs	
1. Repairs performed only by a certified repair person	
	Who may repair a defective fire extinguisher?
2. Inspection interval	
a. Monthly visual inspection and sign the reverse side of TAG, by station personnel	
b. Annually – by state licensed service provider	
c. After each use	
d. When subjected to extreme conditions	

PRESENTATION	APPLICATION

(1) Heat or cold

(2) Corrosive environment

(3) Abusive use (dents, etc.)

e. Evidence of tampering

(1) Broken seal

(2) Low pressure reading

(3) Missing locking pin

3. Check manufacturers recommendations for further information

SUMMARY:

Acquiring a basic knowledge of how fire extinguishers work and following safe procedures will help fire fighting personnel be more effective and could extend your firefighting career.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).